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EFFECT OF GROUP PRESSURE ON MEMORY.

BY- ALLEN, VERNON L. BRAGG, BARRY W.
WISCONSIN UNIV., MADISON

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DESCRIPTORS- *PAIRED ASSOCIATE LEARNING, *FEEDBACK, *SOCIAL INFLUENCES, *RETENTION, RETENTION STUDIES, VERBAL LEARNING, COGNITIVE PROCESSES, MEMORIZING,

SEVENTY-FIVE FEMALE PSYCHOLOGY STUDENTS PARTICIPATED IN A STUDY WHICH INVESTIGATED THE EFFECT OF GROUP PRESSURE ON THE RETENTION OF PREVIOUSLY LEARNED VERBAL MATERIAL IN A CONTROLLED LABORATORY SETTING. THE SUBJECTS WERE RANDOMLY ASSIGNED TO FIVE SITUATIONS, 15 TO A GROUP, AND WENT THROUGH 4 STEPS IN THE EXPERIMENT -- (1) ORIGINAL LEARNING, (2) TESTING WITH OTHER SUBJECTS, (3) TESTING ALONE, AND (4) RELEARNING. AFTER LEARNING A PAIRED-ASSOCIATES TASK, THE SUBJECTS WERE EXPOSED TO ONE OF 3 SITUATIONS -- (1) CORRECT FEEDBACK, (2) INCORRECT FEEDBACK, AND (3) NO FEEDBACK. TWO OTHER SITUATIONS SERVED AS CONTROLS FOR THE CORRECT-FEEDBACK AND THE INCORRECT-FEEDBACK SITUATIONS. FEEDBACK WAS GIVEN EITHER BY A GROUP OR BY ONE PERSON. RESULTS SHOWED THAT RECALL WAS ACCELERATED BY CORRECT FEEDBACK AND REDUCED BY INCORRECT FEEDBACK, AND THAT FEEDBACK FROM OTHER PERSONS SIGNIFICANTLY AFFECTED MEMORY. THE DIFFERENCE BETWEEN THE ONE-PERSON AND THE GROUP CONDITIONS FAILED TO REACH SIGNIFICANCE. HOWEVER, INTERNAL ANALYSES REVEALED DIFFERENCES BETWEEN THE TWO CONDITIONS WHICH INDICATED THAT NORMATIVE SOCIAL INFLUENCE AS WELL AS INFORMATIONAL SOCIAL INFLUENCE AFFECTED COMPLEX COGNITIVE PROCESSES. (AUTHOR/NS)

EFFECT OF GROUP PRESSURE ON MEMORY

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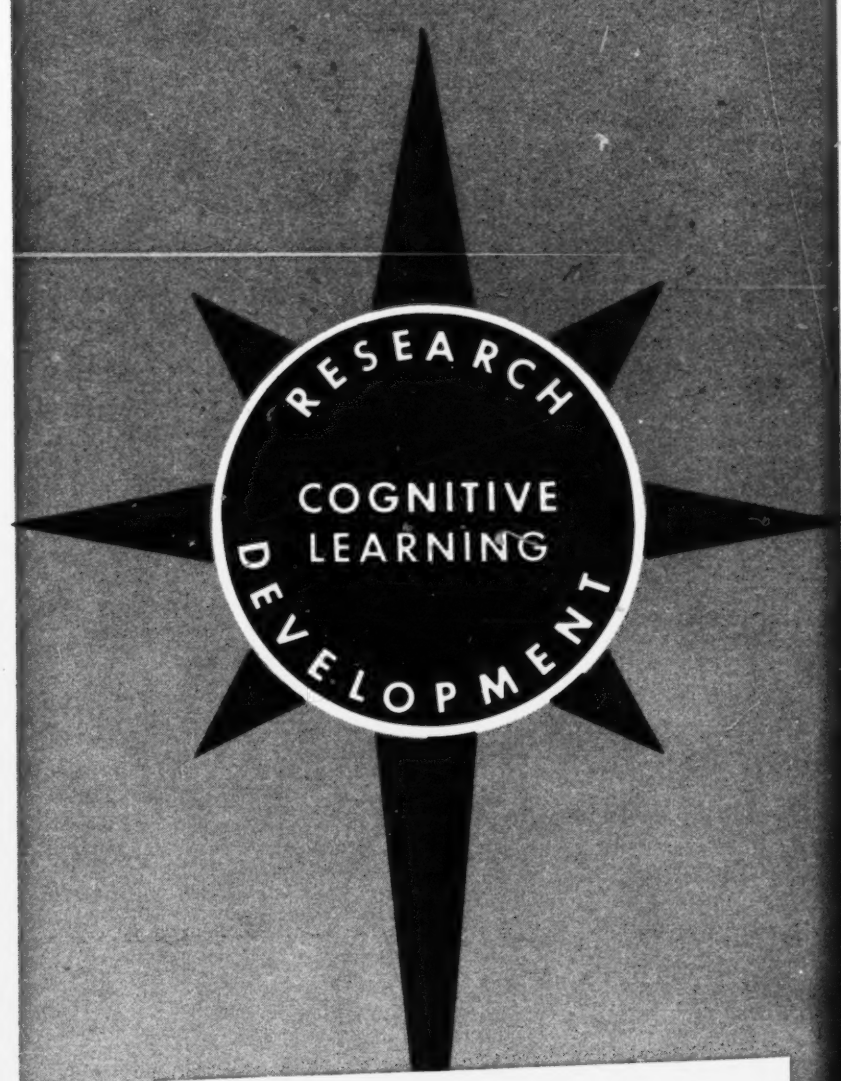

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Technical Report No. 30

EFFECT OF GROUP PRESSURE ON MEMORY

Vernon L. Allen and Barry W. Bragg

Wisconsin Research and Development
Center for Cognitive Learning
The University of Wisconsin
Madison, Wisconsin

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PREFACE

One major program of the Wisconsin R and D Center for Cognitive Learning is Program 1 which is concerned with fundamental conditions and processes of learning. This Program consists of laboratory-type research projects, each independently concentrating on certain basic organismic or situational determinants of cognitive learning, but all united in the task of providing knowledge which can be effectively utilized in the construction of instructional systems for tomorrow's schools.

Any complete study of the variables which influence human learning—whether in or out of the classroom—must ultimately consider social influences. Professor Allen and his associates are actively engaged in a research project directed towards the analysis of social determinants in the acquisition and retention of basic cognitive skills.

In this particular study Professor Allen used a relatively simple paired-associate learning task as a vehicle for determining the effects on learning of manipulated feedback from an aggregate of college peers presumably learning the same problem. The results permit a distinction between the normative and the informational aspects of this form of social influence.

Harold J. Fletcher
Director, Program 1

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ABSTRACT

The present study investigated the effect of group pressure on the retention of previously learned verbal material. After learning a paired-associates task, Ss were exposed to correct feedback, incorrect feedback, or no feedback. The feedback was given either by a group or by one person. Results showed that feedback from other persons did significantly affect memory: recall was enhanced by correct feedback and reduced by incorrect feedback. The difference between the one-person and the group conditions failed to reach significance. Internal analyses did, however, indicate differences between the group and the one-person conditions, suggesting that normative social influence as well as informational social influence affects complex cognitive processes.

I
INTRODUCTION

The importance of social norms in determining individual behavior has long been stressed by social scientists. Empirical research has shown that individuals do conform to social pressure exerted by other persons in a variety of situations (Allen, 1965). A review of the literature shows that most previous research conducted on the effect of group pressure has used either subjective stimuli or simple visual perceptual stimuli such as length of lines. It is reasonable to expect that social pressures influence complex cognitive processes such as learning and remembering, as well as simple judgmental responses.

In spite of its obvious importance, the role of social factors in learning and remembering has received little systematic attention. One study, though of a nonexperimental nature, clearly documented the detrimental influence on achievement of social norms held by the adolescent subculture. Coleman (1960) found that the relation between IQ and academic achievement (measured by grades) varied widely from school to school. Yet, when entrance into the "right" peer group was contingent upon good grades, there was a high relation between academic achievement and ability, as indicated by scores on intelligence tests. Similar findings were reported by Van Egmond (1961) who found that acceptance by peers was related to children's utilization of intellectual ability in academic performance.

Coleman points out that results of his study demonstrate that value systems and norms determine whether the academic ability that studends possess will be expressed in high achievement. Students with high ability tend not to achieve uniformly; high achievement occurs only when it leads to approval from the peer group. Coleman's results led him to assert, "The theory and practice of education remains focused on individuals; teachers exhort individuals to concentrate their energies in scholarly directions, while the community of adolescents diverts these energies into other channels [p. 338]."

Early experimental research conducted under the rubric of "social facilitation" has relevance to the present topic. The mere presence of other persons engaged in the same activity has been shown to affect an individual's behavior. On matters requiring intellectual performance and critical thinking, the classic early research of Allport (1920) revealed a detrimental effect due to the presence of co-acting groups. Allport's experimental research also showed that, in the presence of other people, persons tend to assume a cautious or "submissive" attitude which moderates judgmental responses.

But on the specific problem of the effect of social factors on learning and remembering, little systematic work has as yet been conducted under controlled conditions. Bartlett's (1932) discussion of distortion of memory by social factors has direct relevance to the present problem. Unfortunately, only observational evidence of a noncontrolled nature was presented in his study. At the anecdotal level, many case histories reported by school psychologists point to social factors as the origin of learning difficulties which some children encounter in the classroom.

In studying the effect of social factors on the cognitive processes of learning and remembering, a distinction should be made between two types of social influence, normative and informational (Deutsch and Gerard, 1955). The first type of social influence, normative, refers to that influence attributable to expectations or norms held by other persons. Influence that derives from one's attempt to secure the approval or avoid the disapproval of a group exemplifies normative social influence. As applied to learning and forgetting, norms that develop in the natural course of a learning situation may affect an individual's performance. Consider the erstwhile norm dictating grades among college males, viz. the "gentleman's C." Failure to adhere to such a social norm exposes the individual to such negative sanctions as ridicule and derision and, possibly, even to rejection by the group (Schachter, 1951).

The second type of social influence, informational, refers to using other people as valid sources of information about reality, in contrast to utilizing others as indices of approval or disapproval. Other people serve as reliable sources of information about the world in the same way as do objective measuring devices. Many times, in the absence of more objective evidence, the responses of other persons constitute the only source of information on which to base one's own responses. Thus, if several people agree on a simple matter of fact, such as the lengths of two lines, we are likely to believe that such consensual responses have a high probability of being objectively correct, even in defiance of our own senses (Asch, 1952). During learning and remembering, other persons' behavior is a source of information to be taken into account. Since acquisition and retention frequently take place in a group context, responses of other persons function as informational social influence that may facilitate or retard performance during both learning and remembering.

As a beginning step in studying the role of social factors in learning, we have attempted to explore the effect of social pressure on retention in a controlled laboratory setting. Purpose of the present study was to investigate the effect of correct or incorrect feedback from a peer group on retention. Any obtained effect of feedback from a group—whether the feedback is correct or incorrect—might be parsimonously explained in terms of informational rather than normative influence. That the feedback comes from a social rather than a nonsocial source might be irrelevant. Steps were taken to provide data relevant to such an explanation. Appropriate control conditions were introduced to determine whether the magnitude of the group's effect on retention was greater than could be accounted for by informational influence alone.

II
METHOD

SUBJECTS

Seventy-five female students from introductory psychology courses received course credit for participating in the experiment. Fifteen Ss were randomly assigned to each of the five conditions.

PROCEDURE

Each subject participated individually in the experiment; it was necessary, however, to convince Ss that four other persons were participating at the same time. Several steps were taken to ensure the success of this ruse. The S was first escorted into one of five isolation booths in the experimental room. Three or four other persons, who were actually E's accomplices, entered the room with S. After the S had been settled in a soundproof isolation chamber and several chamber doors were slammed to indicate the presence of other Ss, the stooges departed, leaving the single naive S alone for the remainder of the experiment.

The E checked with each alleged S by an intercom to ascertain whether she could be heard. Thus, the S heard several voices responding to E's inquiry. Actually, the voices of the other four persons, as well as all instructions presented to S, were tape-recorded.

The S was given the following instructions by way of the recording:

> This study deals with people's ability to learn associations. In order to speed up this experiment we are running five Ss at the same time. Please do not talk or ask any questions. I believe the following instructions will answer any questions about the procedure. You will see the word "keeper" in front of you. Now at the next interval you should see the word-letter pair "keeper—TOC." Your job in this experiment is to guess the three letters that are associated with the word whenever the word comes on alone. So, after you have guessed the letters you will have a chance to see if you were correct. Of course, before you have seen all the word-letter pairs you will not have any idea what they are, so I will go through the list once so you will know how to pronounce the words.
>
> Okay, now that you have seen all the words, I want you to begin to learn the list. You will soon see that the word pairs are all jumbled up and not necessarily in any order. This was done intentionally so you would have to learn the associations of a word with the letters and not just the order of words.
>
> Part of this experiment is concerned with any difference in learning when people pronounce material out loud as compared to when they read it silently. Whenever a word comes on alone pronounce it out loud and guess what three letters are associated with it. If you are unsure of the three letters, guess anyway. If you have no idea say "don't know." You will be interrupted in the learning and tested on how much you know at various times before you have memorized all the associations.

The E proceeded through the list once, pronouncing the words and calling aloud the letter responses. The S began learning the list by calling aloud the stimulus word and guessing the response trigram. The S was led to believe that the four other persons were doing the same task, though S could not hear responses of other alleged Ss at this point. The S continued responding to the items until 6 or more correct associations were given on one presentation of the list of 18 word-letter pairs. Then the S was stopped and told that she would be tested; at this time the feedback manipulations were introduced.

During the "testing" phase, the S was instructed to answer in serial order, as indicated by a sign in her booth, so that answers could be correctly recorded. The sign indicated that S was supposed to respond fifth (last) in order.

The S was told to respond to every item, even if guessing was necessary. Following the feedback phase, an association test was taken by the S, responding alone. The S observed the stimulus word and was required to respond with a trigram associate within 4 seconds. The response was not shown to S in this phase. Four randomizations of the list were presented.

Then the S relearned the word-letter associates to 100 percent criterion in the same manner as in the initial learning, i.e., by receiving the correct associate after her response. The four steps in the experiment then, were: Original learning, testing with other subjects, testing alone, and relearning.

MATERIAL

The list consisted of 18 word-letter pairs. The stimulus words were obtained from the Noble paralogues (Underwood and Schultz, 1960). The response letters were CVC trigrams, selected from Glaze's (1928) 50-55% meaningful list. The list was composed of the following paired associates: KEEPER–TOC, INCOME–QIX, YEOMAN–CUY, VERTEX–SUK, ORDEAL–BOZ, LEADER–KER, ROSTRUM–JAL, UNCLE–RYD, FATIGUE–GEV, ZERO–PYK, HUNGER–FIP, MALLET–HUG, ARGON–NOH, REGION–MIQ, QUARTER–LYB, TYPHOON–XAN, UNIT–DAF, YOUNGSTER–WEM.

The S–R pairs were presented in four different orders, randomized for each list. In all conditions 6 of the 18 stimulus-response pairs always received correct responses from other persons in the group. On another 6 of the 18 items the group gave unanimously correct responses in one condition and unanimously incorrect responses in another. And on still another 6 of the 18 items, nonunanimous wrong answers were given in the correct and incorrect group conditions. The same feedback was given in the one-person conditions as in the group conditions, with the exception that nonunanimous responses were not possible, of course.

The lists were presented by a Lafayette memory drum. A time interval of 2 seconds occurred between the stimulus and response, and also between pairs of associates.

DESIGN

Five conditions were used in the experiment. In all conditions Ss first learned the paired associates list alone. Then in the experimental conditions, Ss were exposed to feedback from four other persons or one person repeating the response four times. Finally, all Ss relearned the original list alone. The five conditions are described below.

(1) A control condition was used as a baseline from which to determine the effect of the various types of feedback. In the control condition, no feedback was given between the original learning and relearning. Instead, the S always answered after having heard clicks as the E called aloud booth numbers which supposedly indicated that other Ss were answering. In this way, time between the original learning and the relearning phase was kept constant across all conditions.

(2) In the incorrect group-feedback condition, Ss heard four persons give responses in the interval between the learning and relearning periods. Two-thirds of the responses given by the group (12 of 18) were incorrect; all wrong responses were taken from the original learning list. In the case of incorrect responses, the group was unanimous on half the trials; group members disagreed among themselves on the other half of the incorrect responses.

(3) A third condition served as control for the incorrect group-feedback condition. To control for frequency of association, incorrect responses were given by one person, who repeated the response four times, instead of being given by a group of four persons. In this condition, the S was told that the experiment dealt with the effect of pronounceability upon learning and that two Ss were being tested, one of whom would be asked to repeat her answer four times in succession. Only one simulated person was present in this condition, of course. Therefore, the S heard a response by only one person, but the response was repeated four times. The six responses which were not unanimous in the incorrect-group condition were unanimous, of course, in the one-person condition. (Only the six items on which unanimous responses were given in one-person and group conditions were used in the analysis.)

(4) A fourth experimental condition consisted of correct feedback on six items, given by a group of four persons during the period between original learning and relearning. On another six of the items there was disagreement among members of the group of four.

(5) In another condition that served as control for the correct group-feedback condition, one person repeated the correct response four times on the six critical items. Instructions in this condition were identical to instructions for the one-person condition which received incorrect feedback.

III
RESULTS

CONFORMITY TO FEEDBACK

First, we will examine results for the number of correct responses given on the six critical items in the feedback phase, during which correct or incorrect responses were given by others prior to the S's giving her own answer. Analysis of variance for the number of correct responses during the feedback phase showed that the difference among the five conditions was significant at less than the .01 level ($F = 26.42$). As shown in Table 1, a greater mean number of correct answers occurred in the correct-feedback conditions than in the incorrect conditions, with the control condition falling between. This result simply indicates that there was a differential effect of correct and incorrect feedback on the Ss' responses during the feedback phase itself. There was also a significant difference in mean number of correct responses between the one-person and the group conditions when correct feedback was given ($t = 2.70$, $p < .01$). Correct feedback from a group resulted in Ss giving more correct responses than when the feedback was from one person. Difference between the one-person and the group conditions was not statistically significant for the incorrect feedback conditions.

In the typical paradigm used for conformity research, the group exerts pressure on a single individual to give an incorrect response. The incorrect-feedback conditions of the present experiment are analogous to the conditions found in the typical conformity study, and use of the term "conformity" will be limited to these conditions. Conformity to the group's responses in the incorrect-feedback condition occurred on 34 percent of the trials, practically the same amount of conformity found by Asch (1952) in his classic conformity study using discrimination of lines as the task. Agreement with wrong responses was lower for the one-person condition (20 percent), but the difference between the one-person and the group feedback conditions failed to reach an acceptable level of statistical significance ($p < .13$).

Table 1

Mean Number of Correct Responses During the Feedback Period

Condition	Mean correct responses
Control	3.47
Correct, one-person	4.67
Correct, group	5.60
Incorrect, one-person	2.33
Incorrect, group	2.60

EFFECT OF FEEDBACK ON RETENTION

It should be noted, first of all, that there were no significant differences among the conditions in number of trials required to reach criterion during original learning. Analysis of the effect of the group on retention was accomplished by using two measures: first, number of correct responses on the first association trial, and, second, number of trials to relearn to the 100 percent criterion. There was a significant correlation between number of correct responses on the first association trial and number of trials to relearn. The relation was somewhat stronger for the correct feedback conditions (-.74) than for the incorrect (-.56).

Since the mean correlation among the four association trials was very high (.83), data from the association phase will be discussed only for the first trial, which should provide most sensitive scores. Analysis of variance on number of correct responses on the first association trial disclosed an F ratio significant at the .01 level ($F = 5.73$) among the five conditions. The feedback factor—correct vs. incorrect—yielded a significant difference at the .01 level ($F = 19.25$). Table 2 shows that a

Table 2

Mean Number of Correct Responses on the First Association Trial of the Recall Period

Condition	Mean correct responses
Control	2.73
Correct, one-person	3.47
Correct, group	3.07
Incorrect, one-person	1.87
Incorrect, group	2.33

Table 3

Mean Number of Trials to Relearn

Condition	Mean number of trials
Control	9.46
Correct, one-person	6.33
Correct, group	6.40
Incorrect, one-person	8.13
Incorrect, group	9.07

larger mean number of correct first-association responses was given by Ss in the correct feedback conditions than in the incorrect conditions, with the control condition falling between the two. As shown in Table 3, results for mean number of trials to relearn to the 100 percent criterion were similar to results for the first association trial. Analysis of variance for type of feedback was significant at less than the .10 level ($F = 3.23$).

It is important to determine whether the facilitating effect found for correct feedback and the interfering effect found for incorrect feedback on the first association trial is greater than can be accounted for by sheer frequency of association, i.e., by informational rather than normative influence. Therefore, a comparison was made between the group and the one-person feedback conditions, separately for correct and incorrect feedback. As can be seen in Table 2, difference between the one-person and the group conditions was small—and statistically nonsignificant—both for correct and incorrect feedback. It should be noted that the small difference that does exist between the group and the one-person conditions indicates a tendency for one-person feedback to have more impact than group feedback. Thus, for correct feedback, there were more correct responses on the first association trial for the one-person than for the group condition; similarly, there were fewer correct responses for the one-person condition than for the group-feedback condition when incorrect feedback was given. We must conclude, on the basis of these data, that the overall effect of feedback on retention was not due primarily to normative factors, but can be accounted for largely by informational influence.

Nevertheless, further attempts were made by internal analyses to determine whether there might be some effect of normative or group influence on retention beyond that accounted for by informational feedback. First, correlation coefficients were computed between the number of times Ss conformed to incorrect feedback, and the number of correct responses given on the first association trial. A high negative correlation would indicate that conformity to the group's feedback had influenced memory. The Pearson product-moment correlation for the incorrect-group feedback condition was -.76, significantly greater than zero ($p < .01$). Thus, Ss who conformed more to incorrect feedback from the group gave fewer correct responses on the association trials. Correlation for the one-person incorrect feedback condition was in the same direction but not significantly different from zero (-.38). The relation between conforming to wrong responses and effect on retention thus was stronger when incorrect feedback was given by the group than when the response was provided by one person. The finding suggests a normative or group influence on remembering greater than can be accounted for by informational influence.

Another analysis relevant to the question of the normative effect of intervening feedback on remembering is the correlation between original learning and relearning. Any effect of feedback would be disclosed by a reduction in the level of correlation between original learning and relearning. Presented in Table 4 are correlations between number of trials to reach criterion and number of trials to relearn, both for the six items directly receiving feedback and for another group of six items on which correct answers were always presented. It can be seen from Table 4 that the correlation between original learning and relearning was higher for the one-person feedback conditions than for the group feedback conditions. The same relation was found even more strongly on the set of items not directly receiving feed-

Table 4

Correlation Between Number of Trials to Learn and Number of Trials to Relearn

Condition	Feedback items	Nonfeedback items
Control	.70**	.56*
Correct, one-person	.75**	.81**
Correct, group	.57*	.07
Incorrect, one-person	.74**	.81**
Incorrect, group	.54*	.34

*p < .05
**p < .01

back, suggesting that generalization of the group feedback occurred. It appears from these data that feedback from the group exerts a stronger influence on the level of the relationship between original learning and relearning than do the one-person and control conditions.

In the correct-feedback conditions, another interesting difference was found between the one-person and the group conditions. During the feedback phase, the group-feedback condition resulted in significantly more correct answers than one person responding four times ($p < .01$). Thus, the correct-group condition had a greater facilitating effect than the one-person correct condition. The apparent superiority of the correct-group feedback is a "paper tiger" effect, however. On the first association trial, Ss in the group feedback condition did more poorly (though not significantly) than did Ss in the one-person condition; the prior superiority of the group condition was not maintained. It is interesting to speculate that the Ss' hearing correct responses from four other persons made them over-confident, since it appeared that everyone seemed to have learned the material with ease. Such relaxation might have led to less rehearsal, resulting in the Ss' actually remembering somewhat less when later tested alone.

GROUP PRESSURE AND GRADE-POINT AVERAGE

As a final internal analysis, Pearson product-moment correlations were computed, separately for each condition, between grade-point average (GPA) and number of trials to relearn. These correlations are shown in Table 5. In both one-person conditions, the correlations were essentially zero. Correlation between GPA and trials to relearn were significantly greater than zero for the group feedback conditions, however, and of opposite sign though of approximately equal magnitude for the correct and incorrect conditions. The correlation for the group-correct feedback condition was high and negative (-.60); but for the group-incorrect condition the corresponding correlation was high and positive (.66). It appears that for these female Ss there is a relation between grades and the tendency to utilize information from a social or group source.

Table 5

Correlation of Grade-Point Average and Number of Trials to Relearn

Condition	Correlation
Control	-.10
Correct, one-person	.03
Correct, group	-.60**
Incorrect, one-person	.09
Incorrect, group	.66**

**p < .01

IV
DISCUSSION

Purpose of the present investigation was to study the effect of social pressure on the complex cognitive process of remembering. Since a great deal of the interference and facilitation of memory that occurs in everyday life emanates from social sources, the effect of normative and informational social influence constitutes an important research area which has been relatively neglected.

Results of the study showed that while correct feedback enhanced recall, incorrect feedback interfered with later recall. Overall results of the study further indicated that the influence on memory exerted by the group seems to have been primarily informational rather than normative, in terms of the distinction made by Deutsch and Gerard (1955). Had the influence been due predominantly to normative social influence, we should have expected a greater effect on memory as a result of feedback from four persons as compared with the same amount of information provided by one person. Results did not confirm this expectation.

Nevertheless, further internal analyses did provide substantial evidence that normative influence was also a significant factor affecting memory. First, it was found that Ss who conformed to incorrect feedback also tended to give fewer correct responses on recall. The effect on memory of such conformity to incorrect feedback was greater in the group condition than in the one-person condition. Second, a difference was found between the group and the one-person conditions in the magnitude of the correlation between original learning and relearning, with the group feedback condition producing a lower correlation than the one-person feedback condition. The finding indicates that group feedback produced a greater effect than could be accounted for by sheer informational feedback.

Another interesting source of evidence concerning the contribution of normative social influence comes from the correlation between grade-point average (GPA) and relearning. A high relationship was found between GPA and relearning in the group feedback conditions, but no relationship was found in the one-person conditions. Moreover, the relation between GPA and relearning was strongly positive for incorrect-group feedback and strongly negative for correct-group feedback. Persons having higher GPA seem "other-directed" to a high degree. When the group's feedback was correct, Ss with better grades relearned more quickly; but when feedback from the group was incorrect, Ss with better grades relearned more slowly. Since this differential correlation between correct and incorrect feedback conditions was not found in the one-person conditions, it suggests that the relation between GPA and relearning must be explained in terms of a stronger orientation toward normative social influence by Ss with high GPA. This finding is further evidence that a normative or group effect exists in addition to an effect due to informational feedback alone.

At this point, the nature of the feedback received by Ss should be clarified. Feedback, as used in this study, differs somewhat from the typical kind of feedback employed in many learning studies. Often in learning studies the E provides objective feedback concerning the correctness or incorrectness of Ss' responses during a rehearsal period. The nature of the feedback supplied by other persons in the present study is unique in one important respect. Since feedback was provided by Ss' peers, their answers were not necessarily correct. There was an unknown degree of uncertainty concerning the objective correctness of the feedback; and the degree to which responses of other persons were actually correct was unknown to the Ss, of course. All Ss believed that everyone had received the same number of trials, so there was no plausible reason to attribute better memory on the task to other group members. Yet results showed that Ss did rely somewhat on the responses of others and their performance was accordingly enhanced when feedback was correct and attenuated when feedback was

incorrect. The Ss utilized the responses of other persons, though probably realizing their relative unreliability. In other words, any impact of the group on memory was due to the psychological tendency to rely on ambiguous information in the face of uncertainty about the correct answer.

It is plausible to expect that the amount of influence of social feedback on memory would vary directly with the strength of original learning. It should be emphasized, however, that a high degree of uncertainty concerning information from others is probably the typical situation found in real life. Social sources of information affecting memory usually possess reliability of an unknown or uncertain degree, as was true in the present study.

Results of the present study provide strong support for the importance of informational social influence on memory and very suggestive support for the role of normative social influence as well. In the real-life situation, the role of normative social influence is likely to have more impact on memory than in the present study. It is reasonable to believe that the effect of the group on memory would have been much greater in the present study had the individuals constituted a group, in the psychological sense, rather than a mere aggregation of individuals. That is, had interdependence among group members been greater, more normative influence might have occurred, as manifested by a difference between the group and the one-person conditions.

Data from the present study offer sufficient suggestive evidence pointing to the potential importance of social influence on memory to justify further exploration. A problem for further empirical and theoretical analysis is the clarification of the psychological mechanisms by which social influence affects memory. Normative social influence very likely may affect performance—mediated by a fear of being wrong or of being ridiculed—though the group's behavior might not directly affect memory itself. A possible mechanism by which both normative and informational influence might operate is through the redirection of attention and lack of rehearsal caused by group pressure.

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